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CLAIMS

1. A peptide-based immunotherapeutic agent comprising an effective amount of a multi-epitope peptide which is a linear polypeptide molecule comprising different T cell epitope regions joined to each other, wherein

(1) each of said T cell epitope regions shows a positivity index of not less than approximately 100 when measured in a population of patients sensitive to allergen(s);

(2) said multi-epitope peptide reacts with peripheral lymphocytes from at least not less than 70% of said population of patients sensitive to said allergen(s); and

(3) said multi-epitope peptide does not substantially react with IgE antibodies of the population of patients sensitive to said allergen(s).

2. The peptide-based immunotherapeutic agent of claim 1, wherein said different T cell epitope regions are derived from two or more different allergen molecules.

3. The peptide-based immunotherapeutic agent of claim 2, wherein said different allergen molecules are cedar pollen allergens Cry j 1 and Cry j 2.

4. The peptide-based immunotherapeutic agent of claim 1, wherein a site that is processed in the antigen-presenting cells is inserted between each of the T cell epitope regions.

5. The peptide-based immunotherapeutic agent of claim 4,

Sub D21

Sub D31

wherein said site that is processed in the antigen-presenting cells is an arginine dimer or a lysine dimer.

6. The peptide-based immunotherapeutic agent of claim 3, wherein said peptide contains an amino acid sequence described in any of SEQ NO: 1, SEQ NO:2, or SEQ NO:3.

7. The peptide-based immunotherapeutic agent of claim 3, wherein said peptide contains an epitope restricted by at least one HLA class II molecule selected from DRB5\*0101, DRB4\*0101, DQA1\*0102 - DQB1\*0602, DPA1\*0101 - DPB1\*0501, and DPA1\*0101 - DPB1\*0201.

8. The peptide-based immunotherapeutic agent of claim 2, wherein said different allergen molecules are cedar pollen allergen Cry j 1 and hinoki pollen allergen Cha o 1.

9. The peptide-based immunotherapeutic agent of claim 8, wherein said peptide contains an amino acid sequence of SEQ NO: 4 or SEQ NO: 5.

Sub D3

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add D5

add D5

add g2